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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/701,879	MOHANTY ET AL.	
	Examiner	Art Unit	
	Matthew J. Daniels	1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-7,9-15 and 17-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-7,9-15 and 17-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12 April 2007 has been entered.

Claim Objections

2. **Claims 4-7** are objected to because of the following informalities: the multiple dependencies of these claims include Claim 3, which has been cancelled. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Rejections over Medoff in view of Polovina and Sato

3. **Claims 1, 2, 4-7, 9-15, 17-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Medoff (USPN 6207729) in view of Polovina (USPN 3637571) and Sato (USPN 4619962).

As to Claim 1, Medoff teaches a process for producing a temperature sensitive natural filler-reinforced thermoplastic polymer composition as an article which comprises:

(c) extruding a mixture of a temperature sensitive natural filler, consisting essentially of cut fibers selected from (3:10-47) plant leaves, stalks, seeds, and pellets (4:57-60) at a melting temperature less than 200 C (5:56-57) without degrading the natural filler (implicit in that the mixer and extruder temperature remains "less than about 190° C", 5:48-49 and 5:56-57).

Medoff is silent to the pre-blending, pre-drying, the metal salt and the particular amount, melt temperature suppression, pelletizing, and the method wherein without the metal salt the material would degrade the temperature sensitive filler.

However, these aspects of the invention would have been prima facie obvious for the following reasons:

Polovina teaches a process for producing a filler reinforced thermoplastic composition comprising pre-drying a thermoplastic polymer to remove moisture (5:10-40) and extrusion forming the polymer and metal salts (4:43) through a die in a first extruder (5:60-61), wherein the additives are present in an amount of 1 to 10% (2:70), and subsequently pelletizing the strand to form pellets (5:60-61).

Sato teaches a method wherein the melt temperature is suppressed below 200 C by a metal salt (2:22-59) incorporated into a polymer material at about 1-10% by weight (2:55-59). It is submitted that the claimed effect (drawn to what would occur without the metal salt) would be implicit in the method of Sato.

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the methods of Polovina and Sato into that of Medoff for the following reasons:

(a) Medoff suggests polymeric binders (4:47-55) in pellet form (4:57-62), and Polovina teaches a thermoplastic raw material in pellet form, therefore Medoff suggests the polymer feed material which Polovina provides. Additionally, Polovina provides a known technique applicable to the Medoff process which would lead to the predictable result of supplying dry thermoplastic feed materials having the appropriate amount of additive already contained therein.

(b) Medoff suggests a raw material, such as nylon (4:52), having a mixing or extrusion temperature less than about 190 C (5:55-58), which Sato provides (4:14-16, 2:10-21) by incorporating a metal salt additive. Additionally, Sato provides a known technique applicable to the Medoff process which would lead to the predictable result of suppressing the melt temperature and extrusion at a lower temperature.

As to Claims 2 and 4, Medoff teaches kenaf (3:12, among others) and nylon (4:52). **As to Claims 5 and 6**, in the combination of Sato using a metal halide (nylon + lithium chloride, 2:15-55), it is submitted that a reaction product with the melt is implicit in that the claimed ingredients are used at substantially the same temperatures. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate this aspect of the invention into Medoff for the same reasons as set forth above. **As to Claim 7**, Medoff molds the material into shape (5:50-60). **As to Claim 9**, Medoff teaches fiberglass (5:12), and it is submitted that the glass fiber would be added during the mixing process. Alternatively,

rearrangement of the order of adding ingredients is generally considered to be prima facie obvious.

As to Claim 10, Medoff teaches a process for producing a temperature sensitive natural filler-reinforced thermoplastic polymer composition as an article which comprises:

(c) extruding a mixture of a temperature sensitive natural filler, consisting essentially of cut fibers selected from (3:10-47) plant leaves, stalks, seeds, and pellets (4:57-60) at a melting temperature less than 200 C (5:56-57) without degrading the natural filler (implicit in that the mixer and extruder temperature remains "less than about 190° C", 5:48-49 and 5:56-57).

(d) melt forming an article from the composition of step (c) (5:57-58)

Medoff is silent to the pre-blending, pre-drying, the metal particular metal salts and amount, melt temperature suppression, pelletizing, the method wherein the melt temperature is suppressed below 200 C by the metal salt, and the method wherein the extruding without the salt degrades the filler.

However, these aspects of the invention would have been prima facie obvious for the following reasons:

Polovina teaches a process for producing a filler reinforced thermoplastic composition comprising pre-drying a thermoplastic polymer to remove moisture (5:10-40) and extrusion forming the polymer and metal salts (4:43) through a die in a first extruder (5:60-61), wherein the additives are present in an amount of 1 to 10% (2:70), and subsequently pelletizing the strand to form pellets (5:60-61).

Sato teaches a method wherein the melt temperature is suppressed below 200 C by a lithium chloride metal salt (2:22-59) incorporated into a polymer material at about 1-10% by

weight (2:55-59). It is submitted that by providing the claimed materials and process steps, that the effect claimed in step (d) would have been implicit.

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the methods of Polovina and Sato into that of Medoff for the following reasons:

(a) Medoff teaches polymeric binders (4:47-55) in pellet form (4:57-62), and Polovina teaches a thermoplastic raw material in pellet form, therefore Medoff suggests the polymer feed material which Polovina provides. Additionally, Polovina provides a known technique applicable to the Medoff process which would lead to the predictable result of supplying dry thermoplastic feed materials having the appropriate amount of additive already contained therein.

(b) Medoff suggests a raw material, such as nylon (4:52), having a mixing or extrusion temperature less than about 190 C (5:55-58), which Sato provides (4:14-16, 2:10-21) by incorporating a metal salt additive. Additionally, Sato provides a known technique applicable to the Medoff process which would lead to the predictable result of suppressing the melt temperature and extrusion at a lower temperature.

As to Claim 11, Medoff teaches kenaf (3:12, among others). **As to Claim 12**, Medoff teaches maleic anhydride modified polyethylenes (4:63-67), which the Examiner interprets to be a maleated compatibilizer. **As to Claims 13**, Medoff teaches at least nylon (4:52). **As to Claim 14**, in the combination of Sato using a metal halide (nylon + lithium chloride, 2:15-55), it is submitted that a reaction product with the melt is implicit in that the claimed ingredients are used at substantially the same temperatures. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate this aspect of the invention into

Medoff for the same reasons as set forth above. **As to Claim 15**, Medoff molds the material into shape (5:50-60). **As to Claim 17**, Medoff teaches fiberglass (5:12), and it is submitted that the glass fiber would be added during the mixing process. Alternatively, rearrangement of the order of adding ingredients is generally considered to be prima facie obvious.

As to Claim 18, Medoff teaches a process for producing a temperature sensitive natural filler-reinforced thermoplastic polymer composition as an article which comprises:

(c) extruding a mixture of a temperature sensitive natural filler, consisting essentially of cut fibers selected from (3:10-47) plant leaves, stalks, seeds, and pellets (4:57-60) at a melting temperature less than 200 C (5:56-57) without degrading the natural filler (implicit in that the mixer and extruder temperature remains "less than about 190° C", 5:48-49 and 5:56-57).

Medoff is silent to the pre-blending, pre-drying, the metal particular metal salts and amount, melt temperature suppression, pelletizing and the method wherein without the metal salt the material would degrade the temperature sensitive filler.

However, these aspects of the invention would have been prima facie obvious for the following reasons:

Polovina teaches a process for producing a filler reinforced thermoplastic composition comprising pre-drying a thermoplastic polymer to remove moisture (5:10-40) and extrusion forming the polymer and metal salts (4:43) through a die in a first extruder (5:60-61), wherein the additives are present in an amount of 1 to 10% (2:70), and subsequently pelletizing the strand to form pellets (5:60-61).

Sato teaches a method wherein the melt temperature is suppressed below 200 C by a metal salt (2:22-59) incorporated into a polymer material at about 1-10% by weight (2:55-59). It is submitted that the claimed effect would be implicit in the method of Sato.

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the methods of Polovina and Sato into that of Medoff for the following reasons:

(a) Medoff teaches polymeric binders (4:47-55) in pellet form (4:57-62), and Polovina teaches a thermoplastic raw material in pellet form, therefore Medoff suggests the polymer feed material which Polovina provides. Additionally, Polovina provides a known technique applicable to the Medoff process which would lead to the predictable result of supplying dry thermoplastic feed materials having the appropriate amount of additive already contained therein.

(b) Medoff suggests a raw material, such as nylon (4:52), having a mixing or extrusion temperature less than about 190 C (5:55-58), which Sato provides (4:14-16, 2:10-21) by incorporating a metal salt additive. Additionally, Sato provides a known technique applicable to the Medoff process which would lead to the predictable result of suppressing the melt temperature and extrusion at a lower temperature.

As to Claims 19 and 20, Medoff teaches kenaf (3:12, among others) and nylon (4:52). **As to Claim 21**, Sato uses lithium chloride (2:15-55) as the preferred melt temperature suppressant. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Sato into that of Medoff for the same reasons as set forth above. **As to Claim 22**, Medoff teaches fiberglass (5:12).

Rejections over Hartman in view of Polovina

4. **Claims 1, 4-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartman (USPN 3947255) in view of Polovina (USPN 3637571). **As to Claim 1**, Hartman teaches a process for producing a temperature sensitive natural filler-reinforced thermoplastic polymer composition as an article comprising:

extruding a mixture of a temperature sensitive natural filler consisting essentially of plant stalk material (bark) and raw material (3:29-41) in an extruder at a temperature less than 200 C without degrading the natural filler (6:38-67, Abstract, lines 12-13), wherein the mixture contains a metal salt (5:20-25).

Hartman does not explicitly teach the steps of pre-drying thermoplastic material, extrusion melt forming, and pelletizing pellets containing 2.5 to 5% of the metal salt, wherein the metal salt causes melt temperature suppression.

However, Polovina teaches a process for producing a filler reinforced thermoplastic composition comprising pre-drying a thermoplastic polymer to remove moisture (5:10-40) and extrusion forming the polymer and metal salts (4:43) through a die in a first extruder (5:60-61), wherein the additives are present in an amount of 1 to 10% (2:70), and subsequently pelletizing the strand to form pellets (5:60-61). In the combination where the additive of Hartman is incorporated into the pre-blending process of Polovina, that the claimed melt temperature suppression would be achieved.

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Polovina into that of Hartman for the following reasons:

(a) Hartman suggests that the binder component can be "any" suitable combustible thermoplastic which can be dispersed and is combustible (3:40-52), and Polovina teaches a thermoplastic raw material which would be combustible and dispersible, therefore Hartman suggests polymer feed material which Polovina provides

(b) Polovina provides a known technique applicable to the Hartman process which would lead to the predictable result of supplying dry thermoplastic feed materials having the appropriate amount of additive already contained therein.

As to Claim 4, Polovina teaches at least ABS polymers (3:5-15), and in view of Hartman's suggestion to use "any" suitable combustible thermoplastic which can be dispersed in a log, Hartman suggests the materials of Polovina. **As to Claims 5 and 6**, in the method of Hartman, it is submitted that the metal salt is a metal halide (5:20-23), and in the combination with Polovina set forth above where the ingredients are pre-blended, the reaction product would be implicit in the melting, mixing, and pelletizing process. **As to Claim 7**, Hartman teaches molding the feedstock and natural filler into a shape (see the figure) by extrusion for the same reasons set forth above under the rejection of Claim 1.

5. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hartman (USPN 3947255), Polovina (USPN 3637571) in view of and further in view of Medoff (USPN 6207729)). Hartman and Polovina teach the subject matter of Claim 1 above under 35 USC 103(a). **As to Claim 2**, Hartman is silent to the particular claimed natural fibers. However, Medoff teaches multiple texturized cellulosic and lignocellulosic materials such as hemp, flax,

sisal, corn, kenaf, jute, cotton, etc. (3:10-20) can be combined with resin to encapsulate the material in a composite (4:41-56).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Medoff into that of Hartman in view of Hartman's suggestion that other waste materials may be used (3:65-68), and Medoff's teaching of other waste materials.

Additionally, the method of Hartman differs from the claimed method by the substitution of various materials for the bark of Hartman. However, the substituted components and their functions were known in the art, such as from Medoff. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to substitute the known elements of Hartman with those of Medoff to achieve the predictable results of incorporating a wide range of natural fillers into a thermoplastic fuel pellet. **As to Claim 4**, Polovina teaches at least ABS polymers (3:5-15), and in view of Hartman's suggestion to use "any" suitable combustible thermoplastic which can be dispersed in a log, Hartman suggests the materials of Polovina. **As to Claims 5 and 6**, in the method of Hartman, it is submitted that the metal salt is a metal halide (5:20-23), and in the combination with Polovina set forth above where the ingredients are pre-blended, the reaction product would be implicit in the melting, mixing, and pelletizing process.

6. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hartman (USPN 3947255), Polovina (USPN 3637571) in view of and further in view of McCoy (USPN 3346352). Hartman and Polovina teach the subject matter of Claim 1 above under 35 USC 103(a). **As to Claim 9**, Hartman is silent to the step of introducing a glass or high melting

temperature polymer fiber introduced with the fibers in step (c). However, McCoy teaches that a fire starting composition or fuel (Col. 1) desirably contains a microfibrous material component comprised of glass (4:56) for the purpose of improving the heating composition by its ability to spread the flame over a larger portion of the exposed portion of the composition (1:40-55). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the applicable method of McCoy into the base device of Hartman as a technique that would have yielded predictable results, namely improving the heating composition by spreading the flame.

7. **Claims 10, 12, 13, 14, 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartman (USPN 3947255) in view of Polovina (USPN 3637571). **As to Claim 10**, Hartman teaches a process for producing a temperature sensitive natural filler-reinforced thermoplastic polymer composition as an article comprising:

extruding a mixture of a temperature sensitive natural filler consisting essentially of plant stalk material (bark) and raw material (3:29-41) in an extruder at a temperature less than 200 C without degrading the natural filler (6:38-67, Abstract, lines 12-13), wherein the mixture contains a metal salt (5:20-25).

Hartman does not explicitly teach the steps of pre-drying thermoplastic material, extrusion melt forming, and pelletizing pellets containing 2.5 to 5% of the metal salt, wherein the metal salt causes melt temperature suppression..

However, Polovina teaches a process for producing a filler reinforced thermoplastic composition comprising pre-drying a thermoplastic polymer to remove moisture (5:10-40) and

extrusion forming the polymer and metal salts (4:43) through a die in a first extruder (5:60-61), wherein the additives are present in an amount of 1 to 10% (2:70), and subsequently pelletizing the first strand to form pellets (5:60-61). In the combination where the additive of Hartman is incorporated into the pre-blending process of Polovina, that the claimed melt temperature suppression would be achieved.

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Polovina into that of Hartman for the following reasons:

(a) Hartman suggests that the binder component can be "any" suitable combustible thermoplastic which can be dispersed and is combustible (3:40-52), and Polovina teaches a thermoplastic raw material which would be combustible and dispersible, therefore Hartman suggests polymer feed material which Polovina provides

(b) Polovina provides a known technique applicable to the Hartman process which would lead to the predictable result of supplying dry thermoplastic feed materials having the appropriate amount of additive already contained therein.

As to Claim 13, Polovina teaches at least ABS polymers (3:5-15), and in view of Hartman's suggestion to use "any" suitable combustible thermoplastic which can be dispersed in a log, Hartman suggests the materials of Polovina. **As to Claims 14 and 15**, in the method of Hartman, it is submitted that the metal salt is a metal halide (5:20-23) and that the composition is molded into a shape (Figure). In the combination with Polovina set forth above where the ingredients are pre-blended, the reaction product would be implicit in the melting, mixing, and pelletizing process.

8. **Claims 11-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartman (USPN 3947255), Polovina (USPN 3637571) in view of and further in view of Medoff (USPN 6207729)). Hartman and Polovina teach the subject matter of Claim 10 above under 35 USC 103(a). **As to Claim 11**, Hartman is silent to the particular claimed natural fibers. However, Medoff teaches multiple texturized cellulosic and lignocellulosic materials such as hemp, flax, sisal, corn, kenaf, jute, cotton, etc. (3:10-20) can be combined with resin to encapsulate the material in a composite (4:41-56).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Medoff into that of Hartman in view of Hartman's suggestion that other waste materials may be used (3:65-68), and Medoff's teaching of other waste materials.

Additionally, the method of Hartman differs from the claimed method by the substitution of various materials for the bark of Hartman. However, the substituted components and their functions were known in the art, such as from Medoff. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to substitute the known elements of Hartman with those of Medoff to achieve the predictable results of incorporating a wide range of natural fillers into a thermoplastic fuel pellet. **As to Claim 12**, Hartman is silent to the composition further containing the recited components. However, Medoff teaches a composite further containing a maleic (maleated) modified resin (4:62-67) which acts as a compatibilizer and rubber (2:18).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Medoff into that of Hartman in view of Hartman's suggestion that other waste materials may be used (3:65-68), and Medoff's teaching of other waste materials (1:15-20) and materials which would provide a better bond between the filler and resin.

Additionally, the method of Hartman differs from the claimed method by the substitution of various materials for the filler of Hartman. However, the substituted components and their functions were known in the art, such as from Medoff. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to substitute the known elements of Hartman with those of Medoff to achieve the predictable results of incorporating a wide range of waste materials into a thermoplastic fuel pellet. **As to Claim 13**, Polovina teaches at least ABS polymers (3:5-15), and in view of Hartman's suggestion to use "any" suitable combustible thermoplastic which can be dispersed in a log, Hartman suggests the materials of Polovina. **As to Claims 14**, in the method of Hartman, it is submitted that the metal salt is a metal halide (5:20-23). In the combination with Polovina set forth above where the ingredients are pre-blended, the reaction product would be implicit in the melting, mixing, and pelletizing process.

9. **Claim 17** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hartman (USPN 3947255), Polovina (USPN 3637571) in view of and further in view of McCoy (USPN 3346352). Hartman and Polovina teach the subject matter of Claim 10 above under 35 USC 103(a). **As to Claim 17**, Hartman is silent to the step of introducing a glass or high melting temperature polymer fiber introduced with the fibers in step (c). However, McCoy teaches that a

fire starting composition or fuel (Col. 1) desirably contains a microfibrous material component comprised of glass (4:56) for the purpose of improving the heating composition by its ability to spread the flame over a larger portion of the exposed portion of the composition (1:40-55). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the applicable method of McCoy into the base device of Hartman as a technique that would have yielded predictable results, namely improving the heating composition by spreading the flame.

10. **Claims 18, 19, 21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartman (USPN 3947255) in view of Polovina (USPN 3637571). **As to Claim 18**, Hartman teaches a process for producing a temperature sensitive natural filler-reinforced thermoplastic polymer composition as an article comprising:

extruding a mixture of a temperature sensitive natural filler consisting essentially of plant stalk material (bark) and raw material (3:29-41) in an extruder at a temperature less than 200 C without degrading the natural filler (6:38-67, Abstract, lines 12-13), wherein the mixture contains a metal salt (5:20-25).

Hartman does not explicitly teach the steps of pre-drying thermoplastic material, the melting temperature of the thermoplastic being about 200 C or above, extrusion melt forming and pelletizing pellets containing 2.5 to 5% of the metal salt, wherein the metal salt causes melt temperature suppression..

However, Polovina teaches a process for producing a filler reinforced thermoplastic composition comprising pre-drying a thermoplastic polymer to remove moisture (5:10-40) and

extrusion forming the polymer and metal salts (4:43) through a die in a first extruder (5:60-61), wherein the additives are present in an amount of 1 to 10% (2:70), and subsequently pelletizing the first strand to form pellets (5:60-61). Polovina teaches binders such as ABS, PMMA, polyethylene and polypropylene, and it is submitted that the binders disclosed by Polovina would have implicitly had melt temperatures above 200 C and in the combination where the additive of Hartman is incorporated into the pre-blending process of Polovina, that the claimed melt temperature suppression would be achieved.

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Polovina into that of Hartman for the following reasons:

(a) Hartman suggests that the binder component can be "any" suitable combustible thermoplastic which can be dispersed and is combustible (3:40-52), and Polovina teaches a thermoplastic raw material which would be combustible and dispersible, therefore Hartman suggests polymer feed material which Polovina provides

(b) Polovina provides a known technique applicable to the Hartman process which would lead to the predictable result of supplying dry thermoplastic feed materials having the appropriate amount of additive already contained therein.

As to Claim 19, Polovina teaches at least ABS polymers (3:5-15), and in view of Hartman's suggestion to use "any" suitable combustible thermoplastic which can be dispersed in a log, Hartman suggests the materials of Polovina. **As to Claim 21**, in the method of Hartman, it is submitted that the metal salt is a copper chloride or lithium chloride (5:20-23).

11. **Claim 20** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hartman (USPN 3947255), Polovina (USPN 3637571) in view of and further in view of Medoff (USPN 6207729)). Hartman and Polovina teach the subject matter of Claim 18 above under 35 USC 103(a). **As to Claim 20**, Hartman is silent to the particular claimed natural fibers. However, Medoff teaches multiple texturized cellulosic and lignocellulosic materials such as hemp, flax, sisal, corn, kenaf, jute, cotton, etc. (3:10-20) can be combined with resin to encapsulate the material in a composite (4:41-56).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Medoff into that of Hartman in view of Hartman's suggestion that other waste materials may be used (3:65-68), and Medoff's teaching of other waste materials.

Additionally, the method of Hartman differs from the claimed method by the substitution of various materials for the bark of Hartman. However, the substituted components and their functions were known in the art, such as from Medoff. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to substitute the known elements of Hartman with those of Medoff to achieve the predictable results of incorporating a wide range of natural fillers into a thermoplastic fuel pellet.

12. **Claim 22** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hartman (USPN 3947255), Polovina (USPN 3637571) in view of and further in view of McCoy (USPN 3346352). Hartman and Polovina teach the subject matter of Claim 18 above under 35 USC 103(a). **As to Claim 22**, Hartman is silent to the step of introducing a glass or high melting

temperature polymer as a further filler. However, McCoy teaches that a fire starting composition or fuel (Col. 1) desirably contains a microfibrous material component comprised of glass (4:56) for the purpose of improving the heating composition by its ability to spread the flame over a larger portion of the exposed portion of the composition (1:40-55). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the applicable method of McCoy into the base device of Hartman as a technique that would have yielded predictable results, namely improving the heating composition by spreading the flame.

Response to Arguments

13. Applicant's arguments filed 12 April 2007 have been fully considered but they are not persuasive or are moot in view of the new grounds of rejection. The arguments are on the following grounds:

a) Sears uses cellulosic pulp fibers having an alpha-cellulose purity greater than 80%, which is not a temperature sensitive natural cut fiber. Sears does not teach the addition of a metal salt to a pre-dried thermoplastic polymer. Sears does not teach a two-step extrusion process.

b) Cobb does not recognize the problem, much less Applicants' solution.

c) Hamada molds at temperatures greater than 200 C.

d) Sato describes fillers, but none of these are the claimed fillers.

14. These arguments are not persuasive or are moot for the following reasons:

a) The argument that Sears uses alpha-cellulose, which is not a temperature sensitive natural cut fiber consisting essentially of (Claim 1) a plant leaf, seed, stalk, or combination thereof (pages

11-12 of the remarks) is persuasive. The rejections over Sears are withdrawn. New rejections are set forth above.

b-d) In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Additionally, a new reference to Hartman was discovered which teaches a combining of ingredients that reads on the claimed invention. However, the Hartman reference appears to meet the claims only in its terms, and does not explicitly disclose the particular inventive concept involved, namely the suppression of the melt temperature to avoid degradation of the natural filler. While prior art rejections should ordinarily be confined strictly to the best available art, a backup rejection may properly be made when a claim is met only in terms by a reference which does not disclose the inventive concept involved. See MPEP 706.02(I). Therefore, a backup rejection has been made over Medoff. Sato teaches the melt temperature suppression.

In view of the new reference to Medoff, arguments directed against the Sato reference are not persuasive.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Daniels whose telephone number is (571) 272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Matthew J. Daniels

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30 July 2007